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# New Student Center for Innovation at Connecticut College

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The views expressed in this paper are solely those of the author.



# **NEW STUDENT CENTER FOR INNOVATION AT CONNECTICUT COLLEGE**

## **Senior Integrative Project**

**Ammerman Center for Arts & Technology and the Architectural Studies Department**

**Teagan Atwater**

**May 2016**

**Senior Integrative Project**  
Ammerman Center for Arts & Technology and the Architectural Studies Department

**Teagan Atwater**  
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**MAJORS:** Architectural Studies, Computer Science

**ADVISORS:** Emily Morash, Gary Parker

**INTERNSHIP:** Moove-it in Montevideo, Uruguay (web development)

**PROJECT DESCRIPTION:**

“**New Student Center for Innovation at Connecticut College,**” began as a physical manifestation of my interests in entrepreneurship and innovation through maker- and event spaces and grew to become a study of related campus needs for Connecticut College. The design for the building includes, in addition to the makerspace, student hangout spaces, an eatery, an expanded game room, new offices for multiple campus organizations including OSE, CAT, PICA, class and meeting rooms, an auditorium, an accessible, walkable roof top garden park, and a multifunction event space with a stage. Within the makerspace itself, there is a general-purpose work area for students, faculty, staff and community members, a woodshop, a metal shop, a 3D printing and laser cutting room, a full kitchen and dining room, extensive storage space for materials and in-progress projects, a classroom, and a maker library.

**ACKNOWLEDGEMENTS:**

This project would not have been possible if it were not for the continued support of my advisor, Professor Emily Morash from the Architectural Studies Department. I would also like to thank Professor Steve Luber from the Ammerman Center senior seminar, and Libby Friedman, the Assistant Director of the Center. Also to all of my interviewees: Professors Andrea Wollensak, Jennifer Fredricks, and David Kim; superstar Noel Garrett, and President Katherine Bergeron, along with countless others. Finally to my family and friends who endured my endless screenshot sharing of my models in progress.

## INTRODUCTION

In the fall of 2014, I co-founded Launch, Connecticut College's entrepreneurship club, with a couple of friends. We saw a need on campus that wasn't being met at the time: students interested in starting ventures had no way of finding others with complementary skillsets so that they could build the teams they would need to bring their ideas to reality.

The concept of integrating entrepreneurship into the liberal arts is a relatively new one, and it has been spreading quickly to colleges across the country. Parents are understandably concerned about the rising cost of education and are questioning the benefits of a liberal arts education over their child enrolling in a technical degree program. Liberal arts colleges are beginning to understand their value in the field of entrepreneurship, where well-roundedness and diverse perspectives are great assets, which is helping them begin to regain a competitive position in the higher education market and attract more applicants. We saw creating a new club as the right first step toward cultivating this community and institutional mentality.

So that we could best position Launch and chart its course for the next few years, we began our founding process by imagining what the ideal manifestation of entrepreneurship would be at Connecticut College. An academic center was one possibility — a stretch goal, to be sure — but a pathway was another, more achievable target, as the College was beginning to discuss its reVision process and the new Connections Curriculum.

Both goals required that we design a proof of concept and grow an initial community base from across the liberal arts spectrum. Launch became that proof of concept, with the mission of smoothing the transition to a more formal entrepreneurship and innovation program at the College. It also provided a relatively low-risk way to determine the current demand for such a program among students, as well as to test-run new programming ideas designed to engage both students and the broader community and teach entrepreneurial thinking, which is a rather nebulous idea in its own right.

Through our work building Launch, we came into contact with many existing groups on campus already involved with various interpretations of innovation. These organizations include the Ammerman Center for Arts and Technology, the Holleran Center for Community Action and Public Policy, and a new First-Year Seminar in Social Innovation, to name a few. What was most puzzling to us was that there were next to no existing relationships between these groups: hardly any overlap in the student population, almost no co-hosted events, and no shared space to promote the mingling of ideas or the forming of truly interdisciplinary teams. Combined with the fact that each group had very little

space on campus to call its own, this realization led me to become interested in envisioning what a new campus building, focused on collaborative, interdisciplinary ideation and creation through the use of a new makerspace, could look like.

### **AMMERMAN CENTER FOR ARTS & TECHNOLOGY**

In addition to being an Architectural Studies major, I am also a student scholar in the Ammerman Center for Arts and Technology. This project spanned both sets of requirements, which helped to shape the direction it took. Primarily, because CAT is one of the major constituencies that my building would serve, I entered the project with a keen understanding of what would benefit its students, which was very helpful. Since the main focus of my building was a makerspace and the physical requirements of the Center, the only specific addition I needed to make to project in order for it to be a successful Ammerman project was to create a video tour of the building in order to have a visually engaging, artistic work to give the feel of navigating through the building to viewers.

Having a close-knit group of fellow seniors with whom to grow my project over the course of the year was extremely helpful, and the weekly peer review and presentation kept me on track. It was slightly challenging because there were no other students in the Center doing Architectural Studies projects so it was difficult to talk about my project without an audience who inherently understood exactly what it was I was doing. But this yielded an exciting challenge and I became very proficient at describing the process in a way that made sense to everyone, which helped me through my presentations at the end of the year, and assisted in the effective writing of this paper. It was also very nice to get opinions from outside of the architectural field to help aid in the design process.

**Figure 1: Design Process**



*Left: Notes and takeaways from each major interview; Middle: Inspiration photos from other colleges; Right: Topographical survey of campus*

## INTERVIEWS

In order to ensure that my design would accommodate the needs of the key parties whom I envisioned might use the space, I conducted a series of interviews. I met with Professor Wollensak from the Ammerman Center, Professor Fredricks from the Holleran Center, Noel Garrett, the Dean of Academic Support and Director of the Academic Resource Center, Professor David Kim from the First-Year Seminar in Social Innovation, and President Katherine Bergeron, who could provide input from the perspective of the College's long-term vision. I also spoke more informally with students to get their perspective.

My conversation with Professor Wollensak was fairly short because I already had a decent idea — from the student perspective — of what to include for the Ammerman Center. What I gained from the interview was that not only was the Ammerman Center a strong fit because of the makerspace, but also because the process of design thinking is central to the Center's work. Also that there is a desire to unify all of the separated offices and workspaces of the Ammerman Center into a single location, and that if I were to accomplish that I would need to ensure personal studio spaces for each senior and a classroom for the Center's seminars.

It was slightly more challenging to convince the Holleran Center that they belonged in this building when it was phrased as “for entrepreneurship and innovation.” Despite this, they run a program called the “Social Entrepreneurship Initiative” through which they fund new ventures for social good. They had a perception that their primary focus — policy writing — was not entrepreneurial, though I was able to assist in drawing a connection by using the term “innovative” and by demonstrating how a liberal arts interpretation of entrepreneurship and innovation could very easily be applied to new policy writing. What I learned from Professor Fredricks was that the Holleran Center could use its own, more private space as an upgrade from the single room it has now on the main floor of The College Center at Crozier-Williams, where they are constantly visible by everyone walking around outside, causing distraction to people working within. In terms of physical accommodations aside from new offices, she mentioned that they would also make use of open, convertible event space and a classroom.

Noel Garrett represented the office of Career-Enhancing Life Skills in my interviews. I explained to him my dream that CELS could look beyond “getting a job” and begin to not only know how to handle students who wish to strike out on their own to start a new venture but to have the expertise to guide in that process, and he seemed to be on board with that being part of the future vision of the office. However, since there are already plans underway to bring CELS across the street to the main campus as part of the library and/or Blaustein, we spent more time discussing that vision. What I learned from this interview was that while I no longer needed to plan to include CELS in the final designs, I should still work in a few interview rooms with virtual interview capabilities and a good presentation space in which to teach CELS workshops.

My interview with Professor Kim was a brief conversation over lunch, and what I learned from him was that his First-Year Seminar was a dry-run to see if there was sufficient interest (and to drum up more) in social entrepreneurship and innovation. This was very similar to Launch's mission, and seemed to be heading in the same direction as well: aiming for either an interdisciplinary center long-term or a pathway short-term. Regardless, his course seemed like one of the many ways in which the new space would be introduced to new students and one that would keep them engaged throughout their four years at Connecticut College. His primary use would be teaching in a classroom, but he would also make use of the full makerspace and event space to bring guest speakers in. It was in my conversation with him that I started thinking about putting a kitchen into the makerspace.

I spoke with President Bergeron, not necessarily because she was pushing for entrepreneurship at the time, but instead because in an effort to make this exercise as realistic as possible I valued the input of someone with a longer-range vision for the institution, so that I could work her thoughts and insights into my plans. In the beginning, I was considering pursuing the design of a 'smart building' and exploring intelligent architecture, but it was this conversation with the President that urged me to plan more realistically and see what I could come up with that might be more feasible.

## **EXAMPLES**

To be sure Connecticut College would be competitive in the market with such a building, I looked into other colleges, from others in the New England Small College Athletic Conference to much larger and more well-known institutions like Harvard University, MIT, and Yale University, which all have large entrepreneurship programs. They were able to give me an idea of the kinds of activities I should be sure to account for, but what I was most interested in were the spaces themselves, and there was much less information advertised about this aspect of their programs. This lack of public information made discovering new ideas for the types of spaces I should include more of a challenge.

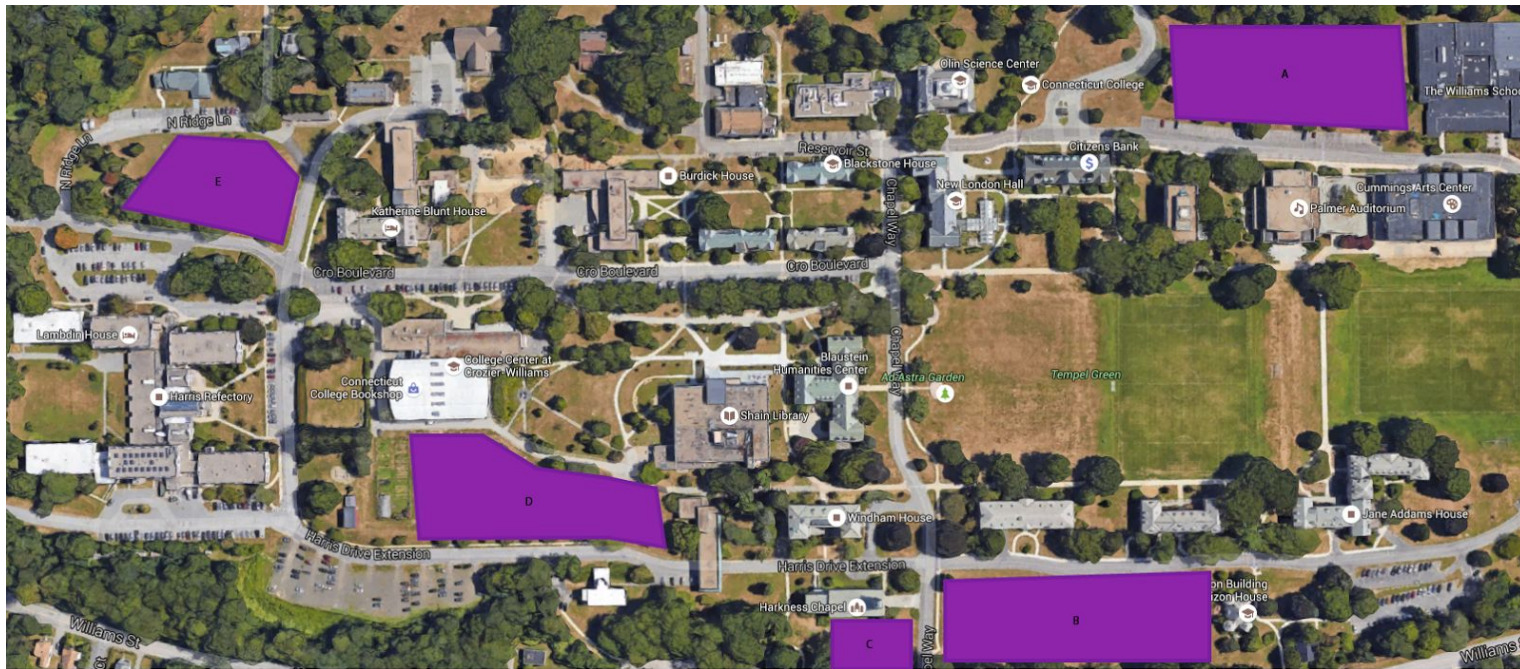
What I found was an overall theme of modern, industrial design style with large, open floor plans and many free tables and chairs for primary workspaces. Those which had their own woodshops or metalworking shops, like Yale, had a specific closed-off area for work so that dirt and dust didn't fill the rest of the space.



## LOCATION

Choosing the ideal campus site for the building was the first significant challenge of the project. There were a number of places I considered: a) between the Williams School and the College's main entrance next to the existing parking, b) between Admissions and Chapel Way, on the corner to balance Knowlton, Windham, and the Chapel, c) between Harkness Chapel and the stone wall along Williams Street, toward Chapel Way from Bolles House, d) between Warnshuis Health Center and the Sprout garden, on one side or another of the big line of trees that splits that zone in half, and e) between Hillel house and the Plex. Figure 2 shows a map of campus with each location highlighted.

*Figure 2: Potential building sites*



*Map of campus with each aforementioned zone highlighted in purple and labeled*

After exploring the options, I quickly disregarded (a) and (b) because both fields are used throughout the year. (c) is a very tight space and it is on the very edge of campus, and the new building would overshadow both the Bolles House and Harkness Chapel, so I disregarded that location as well. (e) is on the northern end of campus rather than near the center, and it was for this reason that I decided to choose (d).

In this way I narrowed my choices down to the rather large area between Warnshuis and the Sprout garden (Figure 3), which is split in half by a row of tall trees. The northern half is lower, flatter, and would directly face the back entrance to the College Center at Crozier-Williams, which in my mind would be a rather unflattering view. There has also been talk of expanding Sprout, and putting the building on this half would limit the degree of possible expansion either with the building's foundation or more likely with its shadow. The southern half of the chosen area has a nice grove of trees and shrubs which would need to be uprooted, and it is also a frequent spot to hold weddings. Otherwise, the fact that it is on a rise toward the library gives it nearly a full story of elevation change, which provides a unique design opportunity to engage with the outdoors on two separate levels of the potential structure.

*Figure 3: The chosen site*



*Perspective shot of site and surrounding area (site outlined in purple)*

I chose the southern side of the line of trees not only because of the site's architecturally- intriguing elevation change but also because of the surrounding area. Between Shain and Crozier-Williams is a flat quad, but while the direct line between Shain and Crozier-Williams is frequently traveled, as is the path that runs behind Shain to the back of Crozier-Williams, I have rarely, if ever, seen anyone hanging out on the quad itself. It seems as though Florialia is the only significant use of the space and for the rest of the year it is left mostly neglected, which is a shame given how central the space is on our campus.

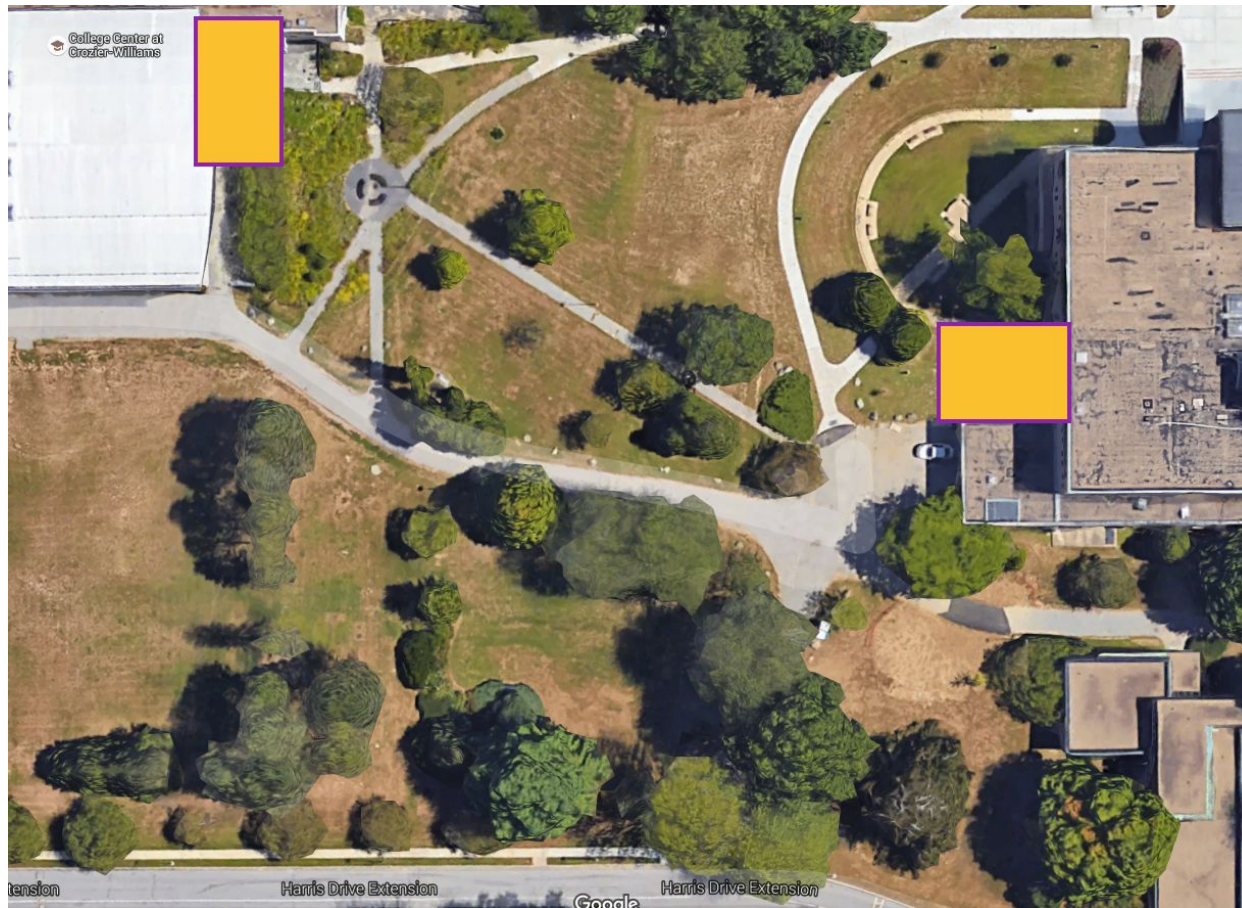
A major contributing factor to this neglect, I believe, is that neither Shain nor Crozier- Williams have main entrances facing the quad, disengaging it from both buildings and causing the quad to be ignored rather than included. With the current trees, the quad also receives a fairly large amount of shade, which may also contribute to its lack of consistent use. The Shain amphitheater runs into similar problems, because

it is almost permanently in the shadow of the library, leaving it cold and uncomfortable the majority of the time. However, rather than arguing for its removal I believe it does have one significant benefit: it allows natural light into the northern end of the library basement, which is much appreciated by those studying within.

By placing the new building to the west of the quad, and designing a main entrance facing east to ensure its engagement with the quad, I could help make that space feel less like a throughway and more like a comfortably-contained, volumetrically defined destination. Because the new building would be shorter than many of the existing trees, its construction would allow the space to remain lighter longer into the evening as well. Accompanying this with a renovation of the Oasis entrance to Crozier-Williams and to the northern side of Shain would help emphasize the destination aspect of the quad, creating a central hub between three major buildings in the heart of campus (Figure 4).



*Figure 4: Renovations to Crozier-Williams and Shain Library*



*Proposed locations for second main entrances on both Crozier-Williams (left)  
and Shain Library (right)*

The building's location, in addition to its design, provides the opportunity for further campus expansion westward past Harris Drive Extension, the road which borders the field. Because the western face of the proposed building is designed to be largely windows, it would give the impression that it faces Harris Drive, making the area feel not only safer but also engaged as part of campus. An exciting potential expansion of this project would be the development of a new village of two- to three-apartment structures, one of which could be either an entrepreneurship house or an Ammerman house to encourage further connection between like-minded creative students who would also be making extensive use of the nearby makerspace. Other options could be a new full-size dorm or a more formalized parking lot.

## **PROJECT GOALS**

The first step I took was to put aside the idea that this building would be specifically for any of the aforementioned organizations, including Launch and the Ammerman Center. They would of course make frequent and significant use of the space, and perhaps be in charge of particular zones of it, but in the end my goal was to engage the broader campus and New London communities in the acts of collaborative invention and creation. By defining the mission in this way, I was able to treat the building as a kind of multi-disciplinary community creativity nexus, rather than as an academic building or as an average student center, even though aspects of both would be found in the final plans.

The building, therefore, would include student center spaces to socialize and get food, a makerspace with woodshop, metalshop, kitchen, and fabrication spaces, an auditorium, a gallery, classrooms and offices, interview and meeting rooms, as well a space similar to Cro's Nest for speakers, bands, or DJs, opening up onto a walkable green roof. In addition, the whole building would be climbable from outside via a ramp with entry access to each level.

Crozier-Williams, our current student center, has relatively little to offer in terms of the kinds of student center spaces typically found in other colleges. It has the bookstore and post office, Oasis Snack Shop and Humphrey's, the campus bar. There is a small area of booths and tables outside of Oasis and Humphrey's, and a few open event spaces scattered throughout the building. The rest of the building is used for non-student center functions, like the office of the Holleran Center, the entire dance department with its three studios, the Camel Card office, Student Government Association office, the Office of Student Life, Outdoors Club, and a few other offices. Originally, the building was constructed as a gymnasium, and its architecture reflects that original goal. It is not spatially organized for gathering, hanging out, or relaxing.

In fact, the only game room on campus is in the Lambdin House common room, a small space at the far north end of campus. Moreover, the majority of student socializing now happens in Shain library, especially on the first floor and in the basement. With the redesign of the

library it is now much better suited to meeting up with friends and passing time, which would be fine, except for the fact that there are also people trying to do their homework and the two uses are often at odds with one another.

Creating a space in the new building that would be specifically designed for relaxing and taking a break from demanding academics would take care of two issues at once: this important type of space would finally be accounted for in the center of campus in a place where it makes the most sense, and combining that break environment with a makerspace would encourage interaction between the two activities, likely increasing student usage of the makerspace.

The makerspace would be available to students and the community at any hour, just like the student center functions. It would accommodate as many avenues of creation and invention as possible - from sewing and textiles to drafting, woodcraft and model building, as well as robotics and 3D printing. It would be stocked with materials so that students would need only enter and build. A quote that stood out to me from the website for Harvard's iLab was "Everything is on wheels and you can write on all the walls." This statement stayed with me throughout my design of the space and I made sure to incorporate it into my plans wherever possible.

I also wanted to make sure that I included both a classroom for teaching new skills and a library for inspiration and instruction, so that, for example, a student wishing to fix a torn shirt could either take a class in sewing or find a book that would instruct them on how to use a sewing machine, or a student who wanted to make a desk stand for their laptop could learn some woodworking skills. Ideally classes would be held regularly in the evenings and be open to the greater community, perhaps even led by some community members.

Storage rooms and lockers for student works in progress would be incorporated into the makerspace design, depending on the size of the project or the program involved. Access to storage and throughout the makerspace would be on the basis of key card swipes. For example, areas like the wood shop and metal shop would need to be made inaccessible to people until they complete the required training or demonstrate sufficient proficiency to be granted access. There were other goals for the building as well: I wanted to incorporate not only places to hang out and to build in, but also spaces to learn in and to present completed projects. The building needed to be a mechanism through which students and members of the community could take their hobbies and passions and turn them into reality, and even into the professional sphere through summer internships and postgraduate careers. To address the physical requirements for learning, teaching, and information and skill sharing, I included an auditorium space, boardroom-style meeting or class spaces, small lecture or presentation spaces, and individual interview or video conference spaces.

The campus is in need of a mid-sized auditorium for speakers, holding somewhere between 150 and 200 audience members, in a centralized location. This building presents an ideal opportunity to implement such a location. Our largest existing auditorium space is Palmer Auditorium, followed by Evans Hall in the Cummings Arts Center. Both of these are at the far southern end of campus and are very large. For slightly smaller speaking engagements, or for groups that wish to host events closer to the heart of campus, the most appropriate current space is Olin 014, a dark, cramped lecture hall in the basement of the science building.

I also included a large gallery space in the project specification, ideally located directly outside of the auditorium, with the intent of hosting receptions, academic and club fairs, and exhibitions of completed works from the makerspace. Because it would be near the auditorium, it would serve as a mingling, networking, and refreshments space during speaking events.

New meeting, interview, and cooperative working spaces were also important to the design of the building, including not just open seating areas for lounging or chatting in small groups but also private spaces for groups to hold important meetings. The campus overall has a shortage of these types of spaces, and overbooking is a problem that clubs and many other groups encounter regularly. Other types of spaces which suffer from shortages across campus include classrooms and faculty and staff offices, so I wanted to be sure that I could include these in my design as well.

Finally, there were a few other additions to the project spec that I made based on things I ran into along the way. The first was to add both vegetation and a wedding space, to account for their loss due to the building's placement. I knew that altering the current site would likely cause resistance to the construction of this new building, so I planned to provide for an even better experience of both. I also wanted to be sure that the building would take in as much natural light as possible, and that it would be possible to see people working in the makerspace from outside the building as well as from other locations within it. I wanted to make the building an example of accessible architecture, because the campus currently has many inaccessible locations, disadvantaging those with movement-related physical disabilities. Finally, I wanted the building to be as environmentally friendly and sustainable as possible.



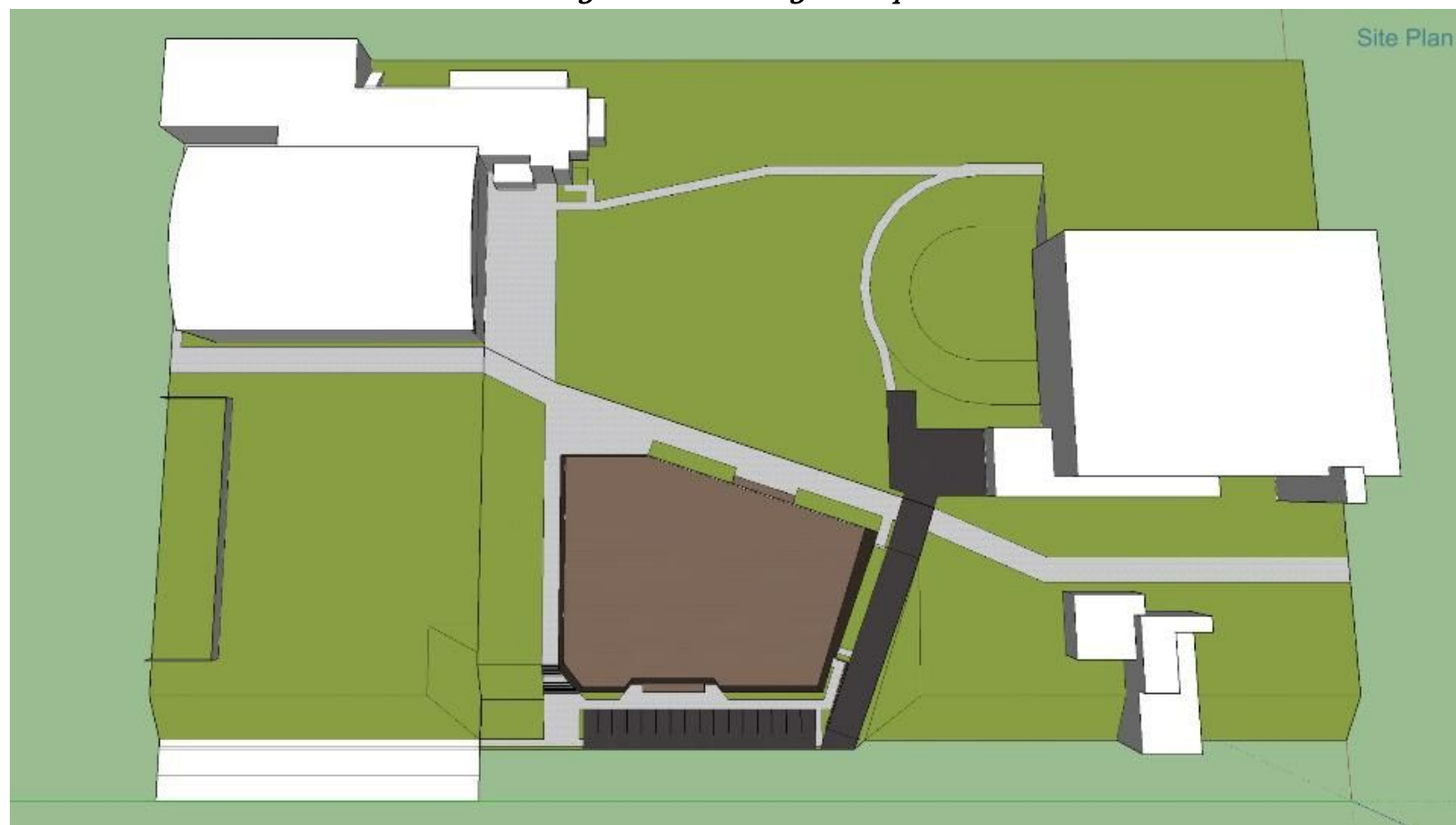
## THE DESIGN

*Figure 5: Exploded model*



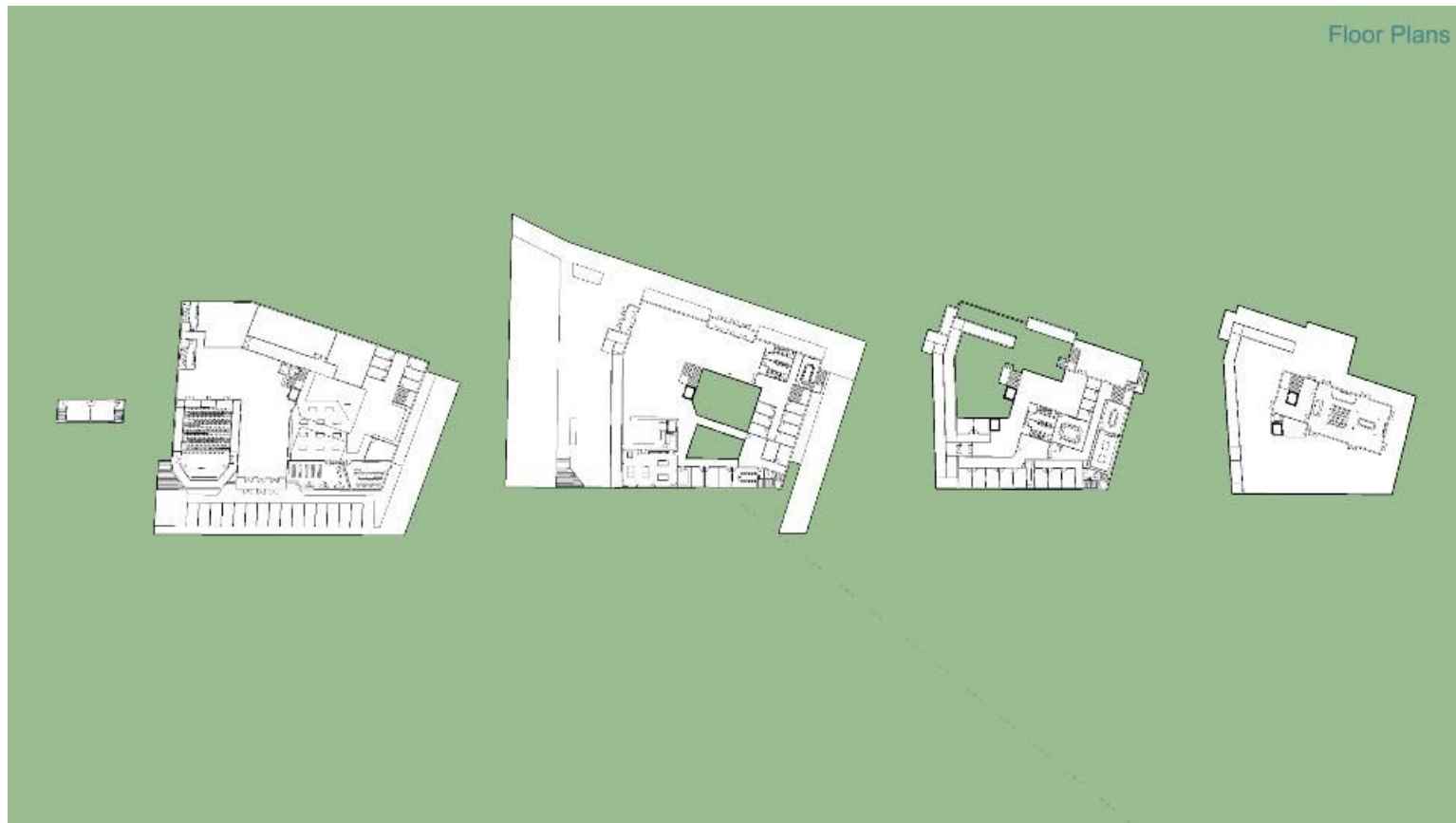
*Exploded view of all designed building floors*

*Figure 6: Surrounding landscape*



*The building site modeled in context*

*Figure 7: 2-D Floor plans*



*Initial two-dimensional floor plan drawings, to lay out spaces and ensure that all required spaces fit*

When designing the building, I knew that I wanted to have the makerspace be the main focal point, around which main activities would occur, with strong visual ties between it and student center areas. In the design, this communication is encouraged through the use of a double-height space for the main workbench zone in the makerspace, extending up through the student center lounge space. The opening to below is ringed by a railing, encouraging verbal as well as visual communication between people in both areas.

This dynamic led me to locate all of the workshop functions of the makerspace on the lowest level of the building, to keep all of the like activities together. These included the woodshop, metalshop, and fabrication room for 3D printing and laser cutting. It also made sense to put these activities on the lowest level because much of the equipment would be heavy and work in the space would cause a lot of noise, which would be especially audible to the floor below.

The whole building as designed has 87,804 square feet, 17,635 of which is outdoor space. 23,524 square feet of the total belong to the makerspace, 7,800 of which are for material and tool storage. The floor-by-floor breakdown is as follows:

**Floor 0:** 23,026sq ft indoor / 0sq ft outdoor; 0sq ft makerspace / 6,548sq ft maker storage (Figure 8)

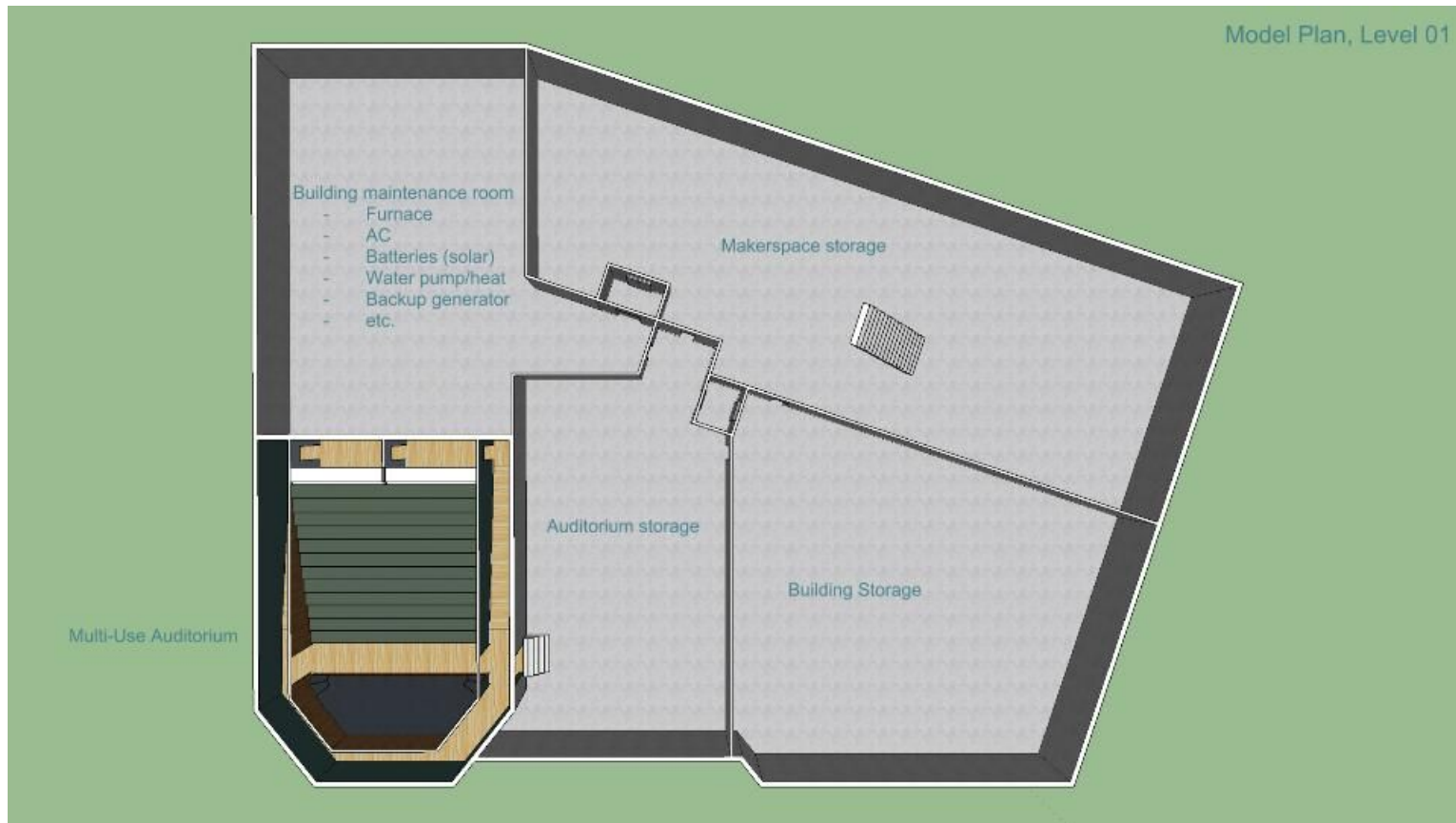
**Floor 1:** 19,306sq ft indoor / 0sq ft outdoor; 11,361sq ft makerspace / 1,253sq ft maker storage (Figure 9)

**Floor 2:** 14,577sq ft indoor / 5,516sq ft outdoor; 2,440sq ft makerspace / 0sq ft maker storage (Figure 10)

**Floor 3:** 9,590sq ft indoor / 1,325sq ft outdoor; 1,922sq ft makerspace / 0sq ft maker storage (Figure 11)

**Floor 4:** 3,670sq ft indoor / 10,794sq ft outdoor (Figure 12)

*Figure 8: Basement floor plan*



*The basement, with auditorium and specific storage spaces with corresponding access*

*Figure 9: First floor plan*



*The first floor, with makerspace and event spaces*

*Figure 10: Second (main) floor plan*



*The second floor, with the student center, food, game room, OSE, and Ammerman Center*



*Figure 11: Third floor plan*



*The third floor, with student center space, the maker kitchen and dining room, a classroom, and many offices*



*Figure 12: Fourth floor plan*



*The fourth floor, with walkable roof terrace and multipurpose event space, as well as separate service access for catered events*

## THE DESIGN: MAKERSPACE

The main zone of the makerspace is the part that is open to the floor above. In it would be an array of wheeled workbench tables, designed to accommodate any type of work. Sewing machines could be available on mobile carts, soldering tools and supplies, and small power hand tools would be available as well. Above and around the space, lighting rails and mounting equipment would be installed for exhibitions and installations. Everything in this area is intended to be mobile, so that the space can be reconfigured and reorganized to fit all types of projects. All wall surfaces including the windows would be dry-erase so that puzzling out a challenge could be as easy as finding the nearest empty wall.

The woodshop has a built-in rack for storing different types and sizes of lumber for more regular or immediate use, whereas a larger volume will be stored in the basement level. The floorplan is designed to be very fluid, with workbenches similar to those in the main area and room for larger power tools including but not limited to a table saw, band saw, CNC router, planer, lathe, chop saws, and belt sander, as well as an air compressor and a dust collection system. Much of the wall space would have pegboard to hold power tools and the rest would have the same dry-erase material as the main area. The metal shop is similarly rearrangeable, and houses tools like a mini mill, plasma cutter, welder, jump shear, and horizontal bandsaw. The fabrication room connects directly to the open maker area, in order to make it immediately accessible, and it is separate from both workshops because it needs to be a relatively clean space, and it hosts 3D printers, laser cutters, and a vacuum former.

To cut down on the noise of these machines and the mess created in the process, the fabrication room is closed off of the main space, and both the workshop and metalshop are down a hallway that is closed from the main room by a double door. All of the glass is designed to be soundproof, as are the floors, ceilings, and walls of the makerspace.

There is a maker library along the open wall to the west, benefiting from natural light into the afternoon and evening. There are 657'-6" of shelf space, which, if we assume a 1" average spine thickness, will fit approximately 7,890 volumes. Next door is the maker classroom, which seats twenty students in a lecture format. This space is intended for the First Year Seminar in social innovation, or any skill-based training sessions that the school might run to help students best know how to utilize the space and the tools within.

The office between the classroom and the fabrication room is there to allow for one or more paid staffers of the makerspace who would take care of the equipment, provide assistance when possible, and do curriculum development for teaching new skills and leading workshops. In

this office would also be all of the digital hardware for managing the lights mounted on the rails for a project exhibition or installation in the space. This full-time position would be augmented by a work study position at the entrance desk at the base of the stairs.

In the southeast corner of the floor are student project storage rooms, with preference given to Ammerman Center students but all available space going to community members working on large projects that do not fit into one of the lockers in the locker bank next to the stairs.

There is a small storage room for unused materials on the same floor as the previously mentioned rooms, but all larger items will be stored in the larger basement, accessible by the extra-wide staircase that faces the hall toward the wood and metal shops.

In order to plan for material deliveries to the makerspace, which is surrounded on nearly all sides by the hill, I needed to create a clear path in from the floor's main entrance to storage spaces. To do this, I put doors on both sides of the makerspace elevator, even though only one side is used to go between floors. When transporting new materials or equipment into the makerspace, both sets of elevator doors could be opened to allow for clear passage. Beyond the elevator, there is a vestibule which can act as a space for the rotation of materials if necessary (and in the event that they must be brought to the metal shop or to basement storage). If they are destined for the woodshop, the entrance is straight ahead from the elevator doors in order to eliminate the need for any awkward maneuvers.

The makerspace has a pair of individual bathrooms specifically to itself. While this design would be more expensive, the decision made the most sense when attempting to determine how to allow for the passage and re-entry of makerspace users to access the main restrooms on the floor, and for reasons of speed, cleanliness, and spatial organization it made the most sense to give the makerspace its own bathrooms.

While the main access to all levels of the makerspace is via a common staircase, community members with physical handicaps may use the main building elevator to access any of the spaces via designated key or card swipe access.

## THE DESIGN: AMMERMAN CENTER

As the Ammerman Center is currently organized, the house at 768 Williams Street is the primary location both for classes and for senior student workspaces. In the new building, Ammerman could move all of those operations, keeping them together. As the Ammerman Center is the primary institution on campus that would make significant use of the makerspace, I thought of it as a kind of “gatekeeper.” I placed all of the 768 Williams functions onto the second floor, right at the main entrance into the makerspace, with some of the student work rooms looking over the makerspace below and the others looking outside of the building toward Warnshuis. This Ammerman Center area also includes a roundtable classroom in the southeast corner of the building. These Ammerman spaces do not get in the way of accessing the makerspace, but it made sense to me to have them be some of the first spaces that visitors would pass through upon entering.

In the southwest corner of the second and third floors are offices dedicated to the Ammerman Center staff. Because they are so far from the other exits in the building, I added a separate escape staircase to ensure everyone could evacuate the building quickly in an emergency. There are five offices included in the suite, the maximum number of staff positions I could think of, though actual use would probably be less and a couple of the offices upstairs could be used for other purposes.

An often-overlooked use case when conceiving of a makerspace is that of the culinary arts, so including a kitchen was a high priority for me. It is especially important on this campus because very few of the housing options on campus have access to a full kitchen, and many turn to the kitchen in Lazarus House which is rather sparsely equipped, so students often must purchase ingredients and other materials. I designed a fully-equipped, fully-stocked kitchen on the third floor of the building with separate swipe card access for added security as well as resource monitoring and mess attribution. There is no passage inside the kitchen that is less than four feet wide; even the pantry has six feet between shelves in order to be as wheelchair-friendly as possible. Next door is a dining room, for enjoying and sharing new creations with friends.

Also on the third floor is a set of four interview rooms, all fully-equipped with video conferencing equipment necessary for interviews with with potential employers. The idea behind the inclusion of these rooms is that it helps to turning a set of hobby, making, and inventing spaces into the path students take toward finding their dream internships and jobs.

## THE DESIGN: STUDENT CENTER

*Figure 12: Student center rendering*



*Rendered using Maxwell for SketchUp*

The student center is the first area most people would see when they enter the building, because the heaviest foot traffic is currently (and would continue to be) up on the quad. This space is designed to be very open, though would achieve intimacy through circular furniture cluster arrangements. There is a live tree growing in the middle, ringed by a bench on three sides and a water fountain on the fourth. Above, the ramp that climbs the whole building from the outside cuts through the ceiling as it wraps its way to the roof, with glass walls so that visual contact can exist between individuals on the ramp and those in the student center.

The new building will be home to a new eatery as well. My hope with this feature is that a new type of food, or rotating selection, could be brought to campus, rather than being simply another coffee shop or fried food place. One idea that came to mind was to have rotating chefs come through, each with their own menus so there would always be something fresh and new. The kitchen would serve out the front to those in the main student center space as well as to the game room in the northwest corner through a bar window.

The game room has enough room for two pool tables, two ping pong tables, and the bar. It has as many windows as there is space for them, allowing those playing a game to see into the makerspace as well as out toward Williams Street and north to the outdoor patio. It has a separate door onto the patio, so that it could be open when the building is not and to allow people to flow between indoors and outdoors with

their food. The bar is not necessarily for the sale of alcohol, though it could be on special occasions or weekend evenings. The intent behind its inclusion was that community members who wanted to eat while playing or observing games could order from the same room and have a place to sit down, while also easing congestion on the main serving side.

The student center continues onto the third floor with additional space for hanging out. Also on the third floor is the outdoor balcony where, in good weather, furniture could be placed. I included this space because I wanted to break up the front facade of the building and provide a stepped appearance from the quad to the rooftop. This would slow the ascent when using the southern exterior staircase and provide a rest spot with a slight view during the climb. It also creates an outdoor space contained within the bounds of the student center that is more private than if it were at ground level.

## **THE DESIGN: EVENT SPACES**

Outside the makerspace on the first floor, at grade with Harris Drive, is the main gallery space. This space would be used to show student works or those by a visiting maker, to host a tabling event like an open house, or for mingling and networking as part of a speaker event in the auditorium.

The auditorium itself seats 208 in a staggered pattern to allow for better visibility between forward patrons, and each row is seven inches higher than the one in front to aid in visibility as well. Underneath the rear of the auditorium, and connected to all stage entrances via accessible ramps are two connected dressing rooms, each with their own two-stall bathroom. Access from the main building elevator to the dressing rooms via a finished foyer ensures that stage-bound individuals with physical disability may arrive and depart in comfort and without hassle.

Unlike Evans in Cummings Arts Center, and even unlike Palmer, the auditorium in this building is designed to have a tech booth at the rear of the audience for controlling sound and lights from within an enclosed space. The auditorium also has its own 2,535 square-foot storage room for props, equipment, and other materials, with straight access from the storage room into the auditorium for ease of carrying large set pieces back and forth.

There are four good locations throughout the building — meeting rooms and classrooms — for leading workshops, so for a larger-scale event it would be easy to include a session of breakout groups apart from the auditorium. Also, because of the close relationship between the makerspace and the auditorium, it would be very easy to host an event that made use of both.

The other main event space in the building is on the rooftop. This space is purposefully multi-functional, with a large amount of open floor space, a stage, a bar, and plenty of access out onto the walkable roof. It would be similar in use to the Cro's Nest in Crozier-Williams, but slightly larger and more engaged with the outdoors. This space could be used for musical performances, meetings, speakers, dances, weddings, as well as many other kinds of events.

Immediately down the stairs and elevator from this event space is a pair of dressing rooms which could act as green rooms for performances and speakers or simply as dressing rooms in the event of a wedding or other important function.

The kitchen on the main floor of the building that serves the building's main eatery is connected directly via a separate elevator to this rooftop event space in order to facilitate a catering operation most effectively. Due to challenges with vertical alignment, if an event happening in the auditorium were to need catering, the kitchen staff would need to use the building's main elevator and enter the gallery space below. Luckily, this would likely not be a problem, as food would be consumed in the gallery instead of in the auditorium anyway.

## **THE DESIGN: OFFICES**

I included offices for the Ammerman Center, the Holleran Center, and the Office of Student Engagement. I determined these needs from my interviews, however as the year progressed I learned of other campus office needs which I was unable to accommodate in time with the space I had available. Since I was generous with my design in terms of what I allotted to all three offices, there would likely be space to fit at least some other organizations.

I also hoped to allow for some specific office space shuffling around campus because of the offices I designed. By relocating the whole the Ammerman Center to the new building, offices in Olin, the Williams Ames House, and 768 Williams Street would open up for other use.

Since the Office of Student Engagement would also move to this new building, REAL would be able to move from Warnshuis to Crozier-Williams and join the Dean of Students. This change would perhaps be the most notable to students, because it is a very common situation for those who have never visited the REAL office before to be unable to locate it in its current location in the back of Warnshuis without extensive guidance and often a hand-drawn map. Moving REAL would allow the health center to expand to the rest of the building, providing the necessary space to hire a new counselor or two to ease congestion.

Finally, because the Holleran would relocate to the new building, their room in Crozier- Williams would open up. It is ill-suited for their use, but due to its prominent location and its high visibility, it would make a great new home base for Campus Safety. At the moment, our

Campus Safety officers operate out of the gatehouse, a cramped and uncomfortable space with no restroom or running water. Not only would this move be more comfortable for the officers, it would also help to increase the interaction between them and students because both groups would be using the same space regularly. It is also a very central location for the officers, allowing them to feel more in the heart of the action and able to respond more quickly in the case of an emergency.

## **THE DESIGN: CLASSROOMS**

There are not many classrooms in this building, because that is not the intent, but due to the instructional nature of the makerspace, I was sure to include spaces that would be conducive to teaching modest-sized student groups. The only true classroom in the building is on the third floor and seats twenty in a round-table format. However, the Ammerman Center would primarily teach its seminars out of its room in the makerspace itself and general makerspace instruction or the First Year Seminar would take place in the classroom on the first floor next to the maker library. Lastly, there is a board room that opens to both the Ammerman Center offices and to the Office of Student Engagement hall which could be used for teaching but would probably be better suited for meetings both in location and layout.

## **THE DESIGN: ACCESSIBILITY**

As explained where appropriate throughout my description of the building, I have made specific design decisions in order to ensure that persons in a wheelchair or on crutches could still make full use of every space. In addition to space-specific provisions, there are also building-wide choices worth noting.

The most noticeable from outside the building is the large ramp that winds up the building's north face (where there will be the most shade and therefore where the ramp will impede the least amount of light intake into the building). This is to ensure that there is an exterior path with entrances to every floor, including the roof. Because the ramp is outdoors, snow and rain pose challenges, which could be mostly handled by laying heating coils into the ramp to melt snow and providing drains for water. However it could still be very challenging to conduct heavy snow or ice removal in an efficient manner, so it would be worthwhile to consider possibilities for covering the ramp in the future.

In addition to the ramp, all floors are accessible by at least the main building elevator from indoors, and all doorways are, at a minimum, three feet wide. No hallway or passage is narrower than six feet, and every bathroom has a wheelchair-accessible toilet.



## THE DESIGN: OUTDOOR SPACE

*Figure 13: Building exterior - quad*



*Exterior view looking from Shain Library with Crozier-Williams to the right*

*Figure 14: Building exterior - Harris Drive*



*Exterior view looking from the road up toward Shain Library with Crozier-Williams to the left and Warnshuis behind to the right*

One of my main goals with the building design was to incorporate and intertwine indoor and outdoor spaces as much as possible. This began with my interest in integrating intentionally with the surrounding landscape and how it is used, specifically with regard to the quad in front of the new building. In order to form a stronger bond with Crozier-Williams and a renovated second entrance on its southern side, I

wanted to ensure that there was a clear connection between both buildings in terms of outdoor patio and lounge space. This would not only connect the buildings for walking, but it would provide a visual connection as well between two non-dining-hall food options with the potential for extensive outdoor seating to blend with passing time on the quad.

I was interested in playing with ground in this situation. When visiting my sister at Colgate University I really enjoyed how, since they are built on the hill, there were plenty of opportunities to walk on top of buildings from uphill, and I wanted to try to recreate that type of experience here in a somewhat surprising way, since it is difficult to judge from Cro that there could be an entire story's worth of elevation change before the road. This is why the outdoor courtyard of the building design sits on top of the auditorium, and ends with a railing above the new line of a dozen parking spots to help ease some of the parking congestion around campus.

I also wanted the connection between interior and exterior to be a very visual experience. The entire entrance atrium to the building on the second floor (entering from the quad) is surrounded by glass in such a way that from one side of the building it is possible to see straight through and out the other side. While this feature is most noticeable in this space, I created as many straight-through sightlines as possible into the overall building's design, in order to foster intrigue and encourage exploration, as well as to provide a reminder of the outdoors through a person's entire visit wherever possible. This also helps create a sense of context and positional understanding, helping the person understand the scale of the structure and its bounds as well as their location within it based upon common visible landmarks from various spaces.

To account for the loss of vegetation and wedding space in the footprint of the building, I included a green roof in the design, à la New York City High Line — a walkable, patio-like experience with various forms of vegetation to encourage spending time outside with an elevated 360-degree view.

Because the rooftop is accessible via the ramp on the northern side of the building and by stairs coming up from the southern side, it simply becomes like a hill that can be climbed when the building is closed and locked. This allows for it to be both a building and landscape feature at the same time, and ensures that this special rooftop space is always accessible to the community.

Finally, the design for the building includes a walking path which cuts straight from Crozier-Williams to the road behind, making direct access to the parking a reality without feeling like you must go off the beaten path to reach your car efficiently.

## **THE DESIGN: MATERIALS**

I chose a few primary materials for the building, based upon a combination of my observations from other campus buildings like Shain and New London Hall as well as the photos of inspiration I gathered during my research phase and compiled this list: stone, glass, metal, wood, brick, plantings, and water features.

Stone was important because all of the older buildings on campus are built out of a very beautiful, large, grey stone blocks, while more recent buildings (Shain, Cummings, Crozier-Williams, Larrabee, and the Plex.) abandoned that look. I knew I wanted to work that older appearance back in, combined with some of the newer patterns I've seen, especially in New London Hall and Shain. What I like about both of these new renovations is that they combine metal and glass in a very contemporary style that allows for tremendous visibility, striking design, and lots of interior natural light. Because of the design of this building, the glass needs to be insulated for both sound and temperature, which will help ensure machinery noise doesn't travel through the open floor plan from the makerspace and that winter and summer temperatures can be regulated inside appropriately and efficiently.

Bringing wood in as a main feature of the interior was important to me for its natural qualities. Not only does it go well with metal and glass, they are not always found together and for a space where people will be spending lots of time relaxing I opted for the warmth and comfort provided by natural wood tones wherever possible. It also adds a sense of being handcrafted, which fits with the vibe of the makerspace and helps link all building functions together. Finally, I also like how effective brick can be at making spaces feel more intimate, more solid, and more social, so I carefully applied brick to walls in areas where social activities and events were most likely to occur, especially on the rooftop story.

While plantings and water features are not solely material choices, their effects on space can be similar to those of more conventional materials. Both were ways in which I aimed to continue the mix of indoor and outdoor spaces, and they both bring natural, relaxing elements into a space intended for relaxation.

## **PROJECT SUMMARY**

This project was an exploration that I conducted as a year-long project to figure out how best to incorporate a path that I have found I really enjoy — that of entrepreneurship — into the curriculum of the college from which I am soon to graduate. It was an exciting way for me to tie together many of my college pursuits into one project, including significant aspects of Architectural Studies, the Ammerman Center, and entrepreneurship. What began in my head as perhaps one large maker room and a lobby evolved as the year went on, and by broadening my

awareness to other campus needs including that of my chosen site, the design became of much more than just that of a new building — it became design of the landscape, the community, the institution's charted course, and the physical organization of many school functions and services.

While it is not my intention that my designs become used by the College or that this particular building is developed at any point in the near future, it is my hope that by outlining many of the things that I learned along the way about needs that this campus has, and by explaining many of my design decisions, aspects of my solution may be implemented over time to help guide the College toward greater efficiency and effectiveness in the future.